

WHAT IS CLAIMED IS :

1. A scanning charged-particle microscope having
a charged-particle source,
a lens for focusing the charged-particle optical beam
5 emitted from said charged-particle source, and
a scanning deflector for scanning said charged-particle
optical beam in two-dimensional form on a sample,
wherein said scanning charged-particle microscope is
characterized in that a passage aperture for limiting the
10 passage of the charged-particle optical beam is located between
the charged-particle source and said scanning deflector, and
in that a member for limiting the passage of the charged-particle
optical beam is provided at least in the center of said passage
aperture.

15 2. A scanning charged-particle microscope as set forth
in Claim 1 above, wherein the scanning charged-particle
microscope is characterized in that the half-opening angle
of said aperture for said charged-particle optical beam focused
on a sample by said focusing lens has a band with respect to
20 specific values of α_a and α_b .

25 3. A scanning charged-particle microscope as set forth
in Claim 1 above, wherein the scanning charged-particle
microscope is characterized in that said passage aperture is
formed in a plate-like body, and in that said plate-like body
is formed movably with respect to said charged-particle optical
beam.

4. A scanning charged-particle microscope as set forth
in Claim 3 above, wherein the scanning charged-particle

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microscope is characterized in that said plate-like body is formed is provided with a circular aperture in addition to said passage aperture.

5. A scanning charged-particle microscope having
a charged-particle source,
a lens for focusing the charged-particle optical beam emitted from said charged-particle source, and
a scanning deflector for scanning said charged-particle optical beam in two-dimensional form on a sample,
10 wherein said scanning charged-particle microscope is characterized in that it has a means by which said charged-particle optical beam focused on said sample is radiated so that the half-opening angle of said aperture for the charged-particle optical beam will have a band with respect
15 to specific values of α_a and α_b .

6. A scanning charged-particle microscope as set forth in Claim 5 above, wherein the scanning charged-particle microscope is characterized in that a plate-like aperture body in which an annular aperture is formed is provided between
20 said charged-particle source and said scanning deflector.

7. A scanning charged-particle microscope as set forth in Claim 6 above, wherein the scanning charged-particle microscope is characterized in that in addition to said annular aperture, a circular aperture is provided in said plate-like aperture body, and in that there is provided a movement feature
25 for positioning said annular aperture and said circular aperture on the orbit of said charged-particle optical beam.

8. A scanning charged-particle microscope having

a charged-particle source,

a lens for focusing the charged-particle optical beam emitted from said charged-particle source, and

a scanning deflector for scanning said charged-particle optical beam in two-dimensional form on a sample,

wherein said scanning charged-particle microscope is characterized in that an aperture for limiting the passage of said charged-particle optical beam is formed in two different places on the orbit thereof, and in that one of said two apertures is an annular aperture and the other is a circular aperture.

9. A scanning charged-particle microscope as set forth in Claim 8 above, wherein the scanning charged-particle microscope is characterized in that said annular aperture is formed in a plate-like body, in that said plate-like body is also provided with a circular aperture, and in that there is provided a movement feature for positioning the annular aperture and the circular aperture on the orbit of said charged-particle optical beam.

10. A scanning charged-particle microscope as set forth in Claim 8 above, wherein the scanning charged-particle microscope is characterized in that said circular aperture is formed in a plate-like body, in that said plate-like body is also provided with a charged-particle optical beam cutoff portion, and in that there is provided a movement feature for positioning said charged-particle optical beam cutoff portion and said circular aperture on the orbit of said charged-particle optical beam.

11. A scanning charged-particle microscope as set forth

in Claim 8 above, wherein the scanning charged-particle microscope is characterized in that said circular aperture and said annular aperture are formed in a first plate-like body and a second plate-like body, respectively, in that said 5 first plate-like body is provided with a charged-particle optical beam cutoff portion in addition to the circular aperture and said second plate-like body is provided with a circular aperture in addition to the annular aperture, and in that both the first plate-like body and the second plate-like body are 10 provided with a movement feature.

12. A samples image forming method using a scanning charged-particle microscope having
a charged-particle source,
a lens for focusing the charged-particle optical beam
emitted from said charged-particle source, and
15 a scanning deflector for scanning said charged-particle optical beam in two-dimensional form on a sample,
wherein said samples image forming method is characterized
in that the image of a sample that has been acquired with an
20 annular aperture positioned on the orbit of the charged-particle optical beam and the image of a sample that has been acquired with a circular aperture positioned on the orbit of the charged-particle optical beam are combined to form a new samples image.

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